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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/696,034

10/30/2003

Peter Rabinovitch

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03/24/2008

EXAMINER

JAKOVAC, RYAN J

ART UNIT

PAPER NUMBER

2145

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/696,034	Applicant(s) RABINOVITCH ET AL.	
	Examiner RYAN J. JAKOVAC	Art Unit 2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/18/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communication filed on 10/30/2003. Claims 1-43 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 4-22, 24, 25, 27-41, and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. 2004/0255151 to Mei et al (hereinafter Mei).

Regarding claim 1 and claim 25, Mei teaches a method of characterizing a content traffic flow for communications network Service Level Agreement (SLA) compliance assessment, the method comprising steps of:

a. tracking cumulative content arrivals, in real time, for the content traffic flow to derive a time variation of cumulative content arrivals (Mei, paragraph [0022-0025], a plurality of sensors monitor network traffic. A plurality of security rules are monitored.); and

b. adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow (Mei, paragraph [0035-0037], Security rules which comprise arrival curve parameters are mapped into a data point in a multidimensional space. Dynamic modification of security rules is disclosed in paragraph

[0035].) , tracking content traffic as received, fitting the arrival curve as content is being received enabling distributed SLA-conformance-assessment-related processing in the communications network (Mei, paragraph [0022], content traffic is monitored and is compared to security rules (paragraph [0013]) in order to enforce service level agreements.).

Regarding claim 2 and claim 25, Mei teaches the method of providing a content traffic flow characterization as claimed in claim 1, further comprising a step of reporting, in real time, arrival curve parameters to a central entity assessing communications network SLA conformance with respect to the content traffic flow (Mei, paragraph [0022], Network traffic is reported to the SLA enforcing system.), limiting reporting to arrival curve parameters only providing reporting bandwidth overhead reductions in support of scalable solutions (Mei, paragraph [0013], Security rules are updated in accordance with incoming events.).

Regarding claim 4 and claim 27, Mei teaches the method claimed in claim 2, wherein reporting arrival curve parameters to the central entity, the method further comprises a step of: receiving a request for an arrival curve parameter update (Mei, paragraph [0013], incoming events cause an action which results in dynamic updates (i.e. arrival curve parameter updates).), reporting arrival curve parameters to the central entity only in response to a request further providing a reduction in the reporting bandwidth overhead (Mei, paragraph [0022], Network traffic is monitored and reported to the SLA system.).

Regarding claim 5 and claim 28, Mei teaches the method claimed in claim 1, wherein tracking cumulative content arrivals for the content traffic flow, the method further comprises a step of: tracking one of cumulative received packets, bits, bytes, words, and double words (Mei, paragraph [0022], Network traffic is monitored.).

Regarding claim 6 and claim 29, Mei teaches the method claimed in claim 1, wherein adjusting arrival curve parameters in fitting the arrival curve, the method further comprises a step of: adjusting two arrival curve parameters in fitting a two parameter arrival curve (Mei, paragraph 0029], signature and ID.).

Regarding claim 7 and claim 30, Mei teaches the method claimed in claim 1, wherein adjusting arrival curve parameters in fitting the arrival curve, the method further comprises a step of: adjusting four arrival curve parameters in fitting a four parameter arrival curve (Mei, paragraph 0029], Four parameters in security rules.).

Regarding claim 8 and claim 31, Mei teaches the method claimed in claim 1, wherein adjusting arrival curve parameters in fitting the arrival curve, the method further comprises a step of: fitting the arrival curve in accordance with one of a shifted linear regression procedure, and a convex hull fitting procedure (Mei, paragraph [0037], security rules are mapped into a data point in a multidimensional space.).

Regarding claim 9, Mei teaches a physical port controller implementing the method claimed in claim 1, comprising a hardware arrival curve generator successively fitting arrival curves to the time variation of cumulative content arrivals for the content traffic flow (Mei, Fig. 1, sensor, firewall, SLA enforcing system.).

Regarding claim 10, Mei teaches a line card implementing the method claimed in claim 1, comprising arrival curve generation means successively fitting arrival curves to the time variation of cumulative content arrivals for the content traffic flow (Mei, Fig. 1, sensor, firewall, SLA enforcing system.).

Regarding claim 11, Mei teaches a communications network node implementing the method claimed in claim 1 comprising one of: a hardware arrival curve generator, and a software arrival curve generator; the communications network node successively fitting arrival curves to the time variation of cumulative content arrivals for the content traffic flow (Mei, Fig. 1, sensor, firewall, SLA enforcing system.).

Regarding claim 12, Mei teaches a method of assessing communications network conformance to a Service Level Agreement (SLA) in respect of a content traffic flow, the method comprising steps of:

a. receiving an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time (Mei, paragraph [0022], Network traffic is reported to the SLA enforcing system.);

b. computing a resource utilization related value based on the received arrival curve parameter report in respect of a content traffic flow pattern and at least one service curve (Mei, paragraph [0026], incoming events are matched against security rules.); and

c. providing a communications network SLA conformance assessment based on the computed resource utilization related value, receiving arrival curve parameters only enables the provision of a real-time scalable communications network SLA conformance assessment solution (Mei, paragraphs [0013], [0022-0025], actions are triggered to enforce SLA based on monitoring incoming events and security rules.).

Regarding claim 13 and claim 32, Mei teaches the method claimed in claim 12, further comprising the prior step of: requesting an arrival curve parameter report (Mei, paragraph [0022], SLA enforcing system receives the monitored network traffic.).

Regarding claim 14 and claim 33, Mei teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: retrieving the at least one service curve from storage in respect of the content traffic flow (Mei, paragraph [0014], post-event analysis is implemented for dynamically changing the mapping of SLAs and security rules.).

Regarding claim 15 and claim 34, Mei teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: retrieving the at least one service curve from a communications network node in a path of the

content traffic flow (Mei, paragraph [0022-0025], sensors placed through the system send information to the SLA server.).

Regarding claim 16 and claim 35, Mei teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: retrieving from storage a sequence in which multiple service curves are to be combined with the arrival curve parameters in respect of the content traffic flow (Mei, paragraph [0014], post-event analysis is implemented for dynamically changing the mapping of SLAs and security rules.).

Regarding claim 17 and claim 36, Mei teaches the method claimed in claim 12, wherein prior to computing resource utilization related values, the method further comprises a step of: discovering a sequence in which multiple service curves are to be combined with the arrival curve parameters in respect of the content traffic flow (Mei, paragraph [0013], security rules are mapped to a plurality of incoming events.).

Regarding claim 18 and claim 37, Mei teaches the method claimed in claim 12, wherein computing resource utilization related values, the method further comprises a step of: computing Quality-of-Service (QoS) parameters (Mei, paragraph [0004], SLAs include QoS requirements.).

Regarding claim 19 and claim 38, Mei teaches the method claimed in claim 12, wherein computing resource utilization related values, the method further comprises a step of: convolving

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an arrival curve respecting the received arrival curve parameters with a service curve (Mei, , Arriving content is matched against security rules.).

Regarding claim 20 and claim 39, Mei teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, the method further comprises a step of: comparing the computed resource utilization related value with a corresponding agreed upon resource utilization value (Mei, paragraph [0013], incoming events are processed and evaluated against security rules.).

Regarding claim 21 and claim 40, Mei teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, the method further comprises a step of: selectively modifying communications network operational parameters to ensure that the resource utilization values comply with agreed upon SLA resource utilization values (Mei, paragraph [0013], dynamic updates to security rules.).

Regarding claim 22 and claim 41, Mei teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, the method further comprises a step of: selectively modifying SLA specified resource utilization values to ensure that the current communications network operation is accommodated in the SLA (Mei, paragraph [0013], dynamic updates to security rules.).

Regarding claim 24, Mei teaches a network management system implementing the method claimed in claim 12 in providing a communications network SLA conformance assessment in respect of the content traffic flow (Mei, paragraph [0013], [0022-0025], Network traffic is monitored and analyzed in accordance with SLA requirements.).

Regarding claim 43, Mei teaches the method claimed in claim 25, wherein the central entity is a network management system (Fig. 1, SLA system.).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mei in view of U.S. 2003/0135609 to Carlson et al (hereinafter Carlson).

Regarding claim 3 and claim 26, Mei teaches the method claimed in claim 2, Mei does not expressly teach wherein reporting arrival curve parameters to the central entity, the method further comprises a step of: including a timestamp specifying the time of the arrival curve fit.

However, Carlson teaches wherein reporting arrival curve parameters to the central entity, the method further comprises a step of: including a timestamp specifying the time of the

arrival curve fit (Carlson, paragraph [0116], The service monitor writes service metric data along with a timestamp of when attributes were measured.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine wherein reporting arrival curve parameters to the central entity, the method further comprises a step of: including a timestamp specifying the time of the arrival curve fit as taught by Carlson with the method of Mei in order to have a record of when the attributes were measured (Carlson, paragraph [0116]).

3. Claims 23 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mei in view of U.S. 2002/0049841 to Johnson et al (hereinafter Johnson).

Regarding claim 23 and claim 42, Mei teaches the method claimed in claim 12, wherein providing a communications network SLA conformance assessment, Mei does not expressly teach the method further comprises a step of: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure.

However, Johnson teaches the method further comprises a step of: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure (Johnson, paragraph [0271], Service functions include redirection decisions.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the method further comprises a step of: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure as

taught by Johnson with the method of Mei in order to manage traffic on a network (Johnson, paragraph [0271]).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. 6,857,020. to Chaar et al discloses SLA service monitors to measure QoS assured systems using SLA management. U.S. 2003/0208523 to Gopalan et al which discloses a predictive real-time Service Level Agreements monitoring system using an analysis of traffic flows with reduced monitor-data flow across a network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN J. JAKOVAC whose telephone number is (571)270-5003. The examiner can normally be reached on Monday through Friday, 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason D. Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RJ

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2145